

REMARKS

In view of the above amendments and the following remarks, further examination and reconsideration of the rejections in the Office Action of January 23, 2009 are respectfully requested.

By this amendment, claims 1, 8, and 12 are canceled without prejudice or disclaimer to the subject matter contained therein. Claims 3, 9, and 36 have been amended. Therefore, claims 3, 9, 11, 21, 22, 30, 36, and 37 are pending.

In item 5 of the Office Action, claim 36 is objected to under 37 CFR §1.75(c) as being of improper dependent form. Claim 3 has been amended to remove the limitation recited in claim 36. Accordingly, this objection is believed no longer applicable, and withdrawal of the objection is respectfully requested.

In item 8 of the Office Action, claims 1, 9, 11, 12, and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over US Pre-Grant Publication 2002/0066475 to Verhaverbeke et al. ('475). The rejection is moot with respect to claims 1 and 12 in view of their cancellation. Claim 9 has been amended to further distinguish the present invention. Accordingly, this rejection is no longer applicable to claims 9, 11, and 21 for the reasons below, and withdrawal of the rejection is respectfully requested.

Claim 9 recites a substrate processing method that includes increasing or decreasing a rotational speed of a substrate holding mechanism from a first rotational speed to a second rotational speed at an acceleration such that an inertial force produced on a portion of the substrate at which the substrate holding mechanism is brought into contact with the substrate is greater than a static frictional force produced on the portion of the substrate at which the substrate holding mechanism is brought into contact with the substrate, thereby sliding and moving the portion of the substrate at which the substrate holding mechanism contacts the substrate. This is not disclosed in the '475 reference.

A substrate holding mechanism 310 is disclosed in the '475 reference wherein a wafer has one rotational speed during the cleaning cycle, and a different rotational speed during the dry and rinse cycles (see paragraph [0036]). The Examiner maintains on page 6 of the Action that

rotational slipping is a newly discovered function or property inherent in the '475 reference, which otherwise discloses the steps recited in claim 9. This assertion is respectfully traversed.

First, the fact that a result *may* occur is not sufficient to establish inherency. Rather, to establish inherency the extrinsic evidence must show that the result is *necessarily* present, see MPEP § 2112(IV). There is no indication in the prior art of record that would suggest that the wafer *necessarily* slips during the increasing or decreasing a rotational speed of a substrate holding mechanism. Further, it clearly not the case the wafer *necessarily* slips during the increasing or decreasing a rotational speed of a substrate holding mechanism, e.g. for a very low angular acceleration of the substrate holding mechanism.

Second, claim 9 recites increasing or decreasing a rotational speed of the substrate holding mechanism from the first rotational speed to a second rotational speed *at an acceleration such that...* Thus, the required acceleration defines how the increasing or decreasing a rotational speed step of the method is carried out. There is no discussion in the '475 reference of the angular acceleration at which the substrate holding mechanism 310 moves between different rotation rates. Thus, the '475 reference does not disclose increasing or decreasing a rotational speed of the substrate holding mechanism as recited in claim 9.

Accordingly, the '475 reference does not disclose or render obvious the present invention as recited in claim 9. Further, the deficiencies of the '475 reference are not obviated by the prior art of record. It is submitted that claim 9 is allowable over the prior art of record, as are claims 11 and 21 depending therefrom.

In item 9 of the Office Action, claims 3, 36, and 37 are rejected under 35 U.S.C. §103(a) as being unpatentable over the '475 reference in view of US Pre-Grant Publication 2005/0133075 to Nguyen ('075). Claim 3 has been amended to further distinguish the present invention. Accordingly, this rejection is no longer applicable to claims 3, 36, and 37 for the reasons below, and withdrawal of the rejection is respectfully requested.

First, claim 3 recites a second liquid supply nozzle for supplying a second cleaning liquid to an inner surface of the substrate holding mechanism and an upper surface of the base member from a second line.

On page 7 of the Action, the Examiner maintains that the second supply nozzle recited in

claim 3 is disclosed by the fluid feed port 142 of the '475 reference; however, this is respectfully traversed. As depicted in Figure 1A and described in paragraph [0039] of the '475 reference, the vapor and gas injected through the fluid feed port 142 impact the wafer, *not* an inner surface of the substrate holding mechanism and an upper surface of the base member, contrary to the recitation in claim 3.

Thus, the '475 reference does not disclose a second supply nozzle as recited in claim 3. Further, the deficiencies of the '475 reference are not obviated by the other prior art of record, nor was the other prior art of cited as disclosing the second supply nozzle in the Action.

Second, claim 3 recites a substrate processing apparatus having a first liquid discharge mechanism for discharging a liquid in the first line to a drain without supplying the liquid to the substrate, and a second liquid discharge mechanism for discharging a liquid in the second line to a drain without supplying the liquid to the substrate.

The '475 reference does not disclose that the first and second lines have a mechanism for discharging and draining the liquid without supplying the liquid to the substrate, nor was it relied on as disclosing such in the Action.

The Examiner asserts that “ '075 shows a generic teaching of a non-dripping nozzle so that droplets do not fall onto a surface and teaches attaching a pump to a line that is connected to the nozzle in order to drain the liquid from the nozzle so that liquid does not fall to the surface of the substrate and damage the substrate.”

However, the non-dripping nozzle of the '075 reference is configured to remove solvent from *the channel* 42 of the dispense head 30 (see paragraphs [0030]-[0032]). The '075 reference explicitly states in each of paragraphs [0030]-[0032] that the liquid or solvent is removed from the channel 42; the reference does *not* disclose that solvent is removed from the nozzles 44.

Thus, the '075 reference does not disclose first and second liquid discharge mechanisms as recited in claim 3. Further, the deficiencies of the '075 reference are not obviated by the other prior art of record, nor was the other prior art of cited as disclosing the second liquid discharge mechanism in the Action.

Accordingly, it is submitted that claim 3 is allowable over the prior art of record, as are claims 36 and 37 depending therefrom.

In item 10 of the Office Action, claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over the '475 reference in view of US Pre-Grant Publication 2003/0183250 to Rodney Chiu et al. ('250). This rejection is moot in view of the cancellation of claim 8.

In item 11 of the Office Action, claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over the '475 reference in view of US Patent 5,898,720 to Yamamoto et al.; in item 12 of the Office Action, claim 30 is rejected under 35 U.S.C. §103(a) as being unpatentable over the '475 and '075 references, and further in view of the '250 reference.

Claims 22 and 30 are allowable at least by virtue of their dependence from claims 9 and 3, respectively, which are believed allowable over the prior art of record for the reasons given above. Accordingly, withdrawal of the rejections is respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

Respectfully submitted,

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